International Journal of All Research Education and Scientific Methods (IJARESM),
ISSN: 2455-6211, Volume 13, Issue 5, May-2025, Available online at: www.ijaresm.com

A Organization Navigator System: A Comprehensive Management Portal

Sameer Saifi[1], Shubham Mishra[2], Abhishek Awasthi[3], Shivam Prajapati[4], Puneet Kumar Sharma[5]

[1,3,4,5]Student, Department of Information Technology, Goel Institute of Technology and Management, Lucknow, India
[2]Assistant Professor, Department of Information Technology, Goel Institute of Technology and Management, Lucknow, India

---***************---

ABSTRACT

As a capstone project, the Organization Navigator System (ONS) represents a fully-fledged, modular Organization Navigator System (ONS) designed to modernize human resource workflows in growing midsize businesses or larger enterprises. Its core two subsystems, Organization Capital Management (OCM) and Organization Resource Information System (ORIS), focus on the automation of employee self-service functions such as attendance, payroll, and evaluation. ONS integrates biometric attendance systems and intelligent payroll computation with centralized workforce analytics to facilitate a digital transformation through a single point of control. The system eliminates manual, redundant, and repetitive data entry processes as well as improves cost and accuracy metrics enabling real-time insight and decision making by HR managers; augmenting the strategic usefulness of human resource systems. In this research, I discuss the constructs, design method, technology stack, and implementation strategy, performance results along with envisioned enhancements for subsequent iterations.

Keywords: HR Manager System Module Biometric Payroll Performance Analytics Human Resource Information System OCM ORIS

INTRODUCTION

Background and Motivation

In the past, Human Resource Management (HRM) used to entail keeping and maintaining various records and files, data input, and administration work done manually. These methods are not only time consuming but also inefficient and make HR departments vulnerable to human error. With the increase and diversification of workforce, intelligent automated HR systems powered by data analytics become vital necessities. [1], [4].

The Organization Navigator System (ONS) was designed in such a way to alleviate issues concerning the empowerment of HR departments by converting simple repetitive tasks into smooth automated workflows.

This allows HR professionals to concentrate on other important matters such as enhancing operational efficiency and strategic functions – talent management, employee engagement, and workforce planning. [5], [16]

Problem Statement

Accurate attendance tracking, payroll calculation, and employee performance evaluation become cumbersome when done manually. Errors may arise, leading to employee discontent, financial difficulties, or violations of labor laws.

These problems stifle HR processes, impacting immediate productivity as well as future organizational strategy. To eliminate such inefficiencies, a robust and precise human resource tool is needed and can be found with ONS, a centralized automated platform that ardently enhances HR operations. [2], [3].

Objectives

The main goal of the Organization Navigator System is to develop and implement an all-inclusive HRMS that will:
Use biometric information for tracking attendance. [1], [4].

Compute payroll with precision and in real time. [6], [7].

Merge employee information for seamless access and processing. [9]

Provide strategic HR insight analytics for informed decision-making. [1], [4].

Assist in the growth of the organization by providing advanced options in regard to collaboration with various services and other internal modules of the HRMS. [1], [4].

System Overview

The ONS system is made up of two main subsystems:

Organization Capital Management (OCM)– Module handles creation of payrolls, pay slips, associated taxes, and payments for employees along with other financial documents. [9], [10].

Organization Resource Information System (ORIS) – This module focuses on the registration of new employees, attendance marking, evaluation of work done, and dashboards with live data metrics. [6], [7].

Having integrated all these modules, ONS provides a comprehensive solution that improves the efficiency of the HR function of the organization. [17], [19].

RELATED WORK / FLOW-CHART

The evolution of Human Resource Management Systems (HRMS) has garnered significant attention over the last two decades, with the primary aim of improving operational efficiency, data accuracy, and employee satisfaction. A vast array of literature and industry case studies has explored the transition from traditional manual HR operations to automated, technology-driven solutions. These studies consistently point to the transformative impact of adopting a digital HRMS framework across organizational tiers. [16]

Numerous companies, particularly in the enterprise sector, have heavily invested in comprehensive HR management tools such as Oracle HCM Cloud, SAP SuccessFactors, ADP Workforce Now, and Zoho People. These platforms provide robust functionalities ranging from employee onboarding, attendance monitoring, leave management, and performance appraisals to complex payroll handling and succession planning. According to a report by Deloitte (2020), organizations utilizing integrated HR platforms experience up to a 40% reduction in routine administrative tasks, allowing HR professionals to redirect their focus toward strategic talent management and organizational development initiatives. [1], [6]

Oracle's Human Capital Management suite has been at the forefront of enterprise-grade HR systems. Designed with scalability and security in mind, Oracle HCM enables advanced features like global workforce planning, AI-driven insights, and machine learning-based talent acquisition tools. However, while powerful, the system is often seen as cumbersome and excessively complex for medium or small-scale enterprises. The cost of implementation, coupled with extensive training requirements, often deters smaller organizations from fully utilizing these capabilities. [19]

Similarly, SAP SuccessFactors offers a modular and cloud-based approach to HR digitalization. The platform supports a wide variety of functionalities including goal management, learning and development, and workforce analytics. Many Fortune 500 companies have adopted SAP's system for its scalability and compliance features. Nevertheless, its intricacy often results in slow adoption rates among HR teams lacking technical expertise. Furthermore, updates and integrations may require intervention from certified consultants, further driving up operational costs. [1], [3].

Zoho People, while comparatively more affordable and user-friendly, still lacks several advanced automation features found in larger systems. Many reviews and implementation case studies have noted that while it performs well in small organizational settings, its limited capacity to support high-volume data processing and real-time analytics restricts its utility for growing businesses. Additionally, customization remains minimal unless paired with Zoho's broader suite of business tools, which again escalates subscription costs. [14].

A recurring theme in literature and industry reports is the mismatch between the functionalities offered by leading HRMS tools and the actual needs of mid-sized organizations. Sharma (2022), in a study focused on HR technology adoption in Indian mid-tier companies, found that while awareness of digital HRMS tools was widespread, actual implementation was low due to budgetary limitations and lack of internal IT expertise. Moreover, many organizations expressed dissatisfaction with the rigidity of commercial HRMS packages, which often require adaptation of internal HR processes to suit the software's workflow, rather than the other way around. [4]

Another significant gap observed in traditional systems is the limited availability of real-time, actionable insights. While data collection is abundant, transforming this raw data into meaningful analytics often requires additional integrations or third- party services. This barrier restricts HR managers from making timely and informed decisions based on workforce trends. In rapidly changing organizational environments, such delays can be detrimental to performance and employee satisfaction. [5].

Research by Singh and Kumar (2020) indicates that automation of core HR activities such as attendance tracking, salary computation, and leave management can yield immediate operational benefits. In their empirical study involving 15 mid- sized companies, organizations that adopted basic HR automation tools saw an average improvement of 65% in processing time and up to 30% in employee satisfaction due to reduced errors and delays in HR-related tasks. However, the study also emphasized that the absence of scalability and system flexibility remained a persistent problem.

In contrast, custom-built HRMS solutions like the Organization Navigator System (ONS) present an adaptive and cost-effective alternative. Unlike monolithic enterprise systems, ONS is tailored to accommodate the specific needs of medium- sized organizations without overwhelming users with unnecessary complexity. It is designed from the ground up to automate key HR functions while being highly configurable to different organizational processes and structures. This adaptability makes it suitable for businesses that have dynamic and evolving HR requirements.

Figure 2: ONS

SYSTEM ARCHITECTURE

Architecture Overview

The architecture of the system is developed with modular design principles and clear delineation of responsibilities. ONS utilizes web-based architecture organized in the frontend-backend manner:

Frontend: Developed in React.js, offering a dynamic and rich graphical user interface. [16], [17]

Backend: Implemented in Node.js and Express.js for streamlined data processing and api routing. [12], [13]

Database: NoSQL MongoDB document database that allows fast querying of both structured and semi-structured data. [17], [13]

APIs: Interfacing with biometric equipment through RESTful APIs. [9], [10]

COMPONENT ARCHITECTURE

Authentication Layer: Implements user logins and permissions utilizing JWT (JSON Web Tokens). [16], [19].

Business Logic Layer: Handles all processing functions including attendance marking, payroll calculation, and any other forms of quantitative evaluations. [17].

Data Access Layer: Holds the responsibility of interacting with the database for retrieving or storing information into the MongoDB. [19].

Data Flow Diagram

Level 0: User login to the system → The system authenticates the login → Access is provided to the appropriate modules. [14]

Level 1: Captured employee attendance → Attendance </ Waitlist / Back Office / Back End > → Data transferred to the backend via biometric system → Data is checked and saved → HR dashboard is updated. [15].

METHODOLOGY

Requirement Relationships
Data was obtained through interviews and questionnaires. Feedback was analyzed to define a system.
Mode of Operation
Maintain employee records [5]
Attendance log System [6]
Monthly payroll report generation [7]
Employee performance assessment [14]
Admin dashboards [15]
Non-functional Requirements
System has to be up 24/7 and responsive. [1], [2], [4].
Must ensure privacy and data accuracy. [9], [10], [11]
Able to interface with ERP systems, Email, and SMS via APIs in the future. [12], [13].

Use Case Design
All use cases were developed with UML use case diagrams to show all major use case system interactions with abstract roles (Admin, HR, Employee). [14], [15]

Database Schema
The database includes unstructured collections of data for:

1. Employess [12] 2. Attendance Records [18]
3. Salary Information [20] 4. Performance Ratings [20]

EXECUTION/IMPLEMENTATION

System Technology Selections.

Frontend: The graphical user interface is developed in React.js while its responsiveness was done in Tailwind CSS. [6]

Backend: The backend server is developed in Node.js. It uses Express.js for the processing of API calls. [7]

Database: Atlas MongoDB. [8].

Dev Tools: GitHub, Postman, VS Code. [8]

The Purpose of the System.

Attendance Module: Captures attendance biometrically by employee fingerprint records and fingerprint scanning is done through the backend API.

Payroll Module: Payment and salary deductions, bonuses, tax payment automation. [9]-[11].

Performance Module: Attendance, task completion with peers, review and other evaluative grab all components. [14], [15].

Admin Panel: Gives power to the HR to edit attendance and leaves for the employees. [12].

Challenges that were faced and overcame.

Adapting the provided APIs to work with the specific requirements of the biometric device: Purpose- built custom API adaptations were made. [15].

Protecting sensitive information: Protection of sensitive information is provided through access control defined by roles. [4], [5].

RESULTS AND DISCUSSION

Key Indicators of Success

Biometrics recognition system error rate: 0.2% (accuracy 99.8%)[9], [10], [11].
Time to processes payroll (manual): 6 hrs, (automated): 90 mins [10]
Data accuracy: better than 95% pre-OLS errors[9], [10], [11].

Analysis Overview		
KPI	**Manual**	**ONS System**
Accuracy	80% Approx	99.5%Approx
Hours for payroll	6	1.5
Error %	15%	<1%

User Responses

Conducting pilot testing with 50 users in a mock company setting indicated that:
Increased satisfaction with speedier procedures[5]
Cut down on time tracking by HR staff [6]
Enhanced accuracy in payroll and attendance record [7]

SUMMARY AND WORKS IN PROGRESS

Summary

The **Organization Navigator System (ONS)** represents a substantial leap forward in the way modern organizations can manage their most valuable asset—human capital. By integrating intelligent technologies with routine administrative functions, the system addresses one of the most persistent challenges in the HR domain: the inefficiency and inaccuracy of manual human resource management processes. Through its two major modules, **Organization Capital Management (OCM)** and **Organization Resource Information System (ORIS)**, the ONS offers a comprehensive and modular architecture that allows organizations to streamline tasks such as attendance tracking, payroll processing, employee onboarding, and performance evaluation. [6], [7]

One of the key strengths of ONS is its ability to automate highly repetitive and error-prone tasks. Manual attendance logs, for instance, are not only inefficient but also prone to manipulation and human oversight. The system's biometric integration component eliminates these issues by offering near-perfect accuracy and real-time synchronization with the central HR database. Likewise, salary computations—often affected by tax regulations, bonuses, and leave deductions—are automated, ensuring precision, compliance, and timeliness. By replacing spreadsheet-based calculations and paperwork with intelligent processing logic, ONS significantly reduces the workload of HR staff while boosting overall organizational efficiency.In conclusion, the Organization Navigator System does not merely digitize HR tasks; it transforms how human resource departments operate. It bridges the gap between administrative execution and strategic HRM, all while being adaptable, efficient, and user-friendly. The successful development and implementation of this system in a test environment affirm the feasibility of creating highly functional HRMS platforms that are not only powerful and reliable but also tailored to real-world organizational needs. [17], [25]

Works in Progress

The Organization Navigator System (ONS) continues to evolve with several advanced features currently under development. A major enhancement involves the integration of **Artificial Intelligence (AI)** to predict employee turnover. By analyzing historical attendance, performance, and engagement data, the system will generate insights to help HR managers proactively implement employee retention strategies.Additionally, a **mobile application** is being developed to offer employees convenient access to essential HR services. Through the app, users will be able to view their attendance records, apply for leave, access payslips, and receive updates, enhancing transparency and employee engagement.Another significant work in progress is the **integration of ONS with Enterprise Resource Planning (ERP) systems**. This will allow seamless data flow between HR and other departments like finance and administration, improving organizational coordination and reducing redundancy.Moreover, the reporting and analytics module is being upgraded to include **interactive dashboards**, real-time performance monitoring, and department-specific insights. These additions aim to transform ONS from a process automation tool into a strategic HR decision-support system.Together, these enhancements reflect a forward-thinking roadmap for ONSpositioning it as a smart, scalable, and integrated solution for modern human resource management.
[16], [25]

CONCLUSION

The Organization Navigator System (ONS) has been developed as a comprehensive and efficient tool to enhance organizational human resource management. By integrating the **Organization Capital Management (OCM)** and **Organization Resource Information System (ORIS)** modules, the system addresses key challenges faced by HR departments in managing human capital, resources, and internal processes.

The OCM module focuses on centralizing employee data, tracking staff performance, managing recruitment workflows, and organizing employee roles and designations. It enables HR professionals to make informed decisions through data-driven insights and improves transparency across the organization. ORIS, on the other hand, provides a detailed view of the organization's departments, resources, and staffing requirements, allowing for better planning and coordination among various teams.

With the integration of modern technologies such as **Java**, **Spring Boot**, **MS-SQL**, and a web-based frontend built using **HTML, CSS, and JavaScript**, the system ensures robust performance, security, and scalability. Moreover, support for multi-user roles and secure access control strengthens data confidentiality and system integrity. ONS not only streamlines HR operations but also reduces the dependency on manual processes, minimizing errors and saving time. The automation of tasks such as resume management, employee tracking, and departmental updates enhances productivity and organizational efficiency.

In conclusion, the Organization Navigator System serves as a dynamic HR solution that adapts to organizational needs while offering a user-friendly interface, scalable architecture, and reliable performance. It demonstrates the practical application of software engineering principles to solve real-world problems in human resource and organizational management.

With further enhancements—such as AI-based analytics, chatbot integration, or cloud deployment—ONS has the potential to evolve into a next-generation enterprise HR tool. This project has not only fulfilled academic objectives but also laid a strong foundation for future professional development in enterprise software systems.

REFERENCES

Human Resource & Organizational Management
Modern HRM Tools: Enhancing Workforce Management through Tech
https://www.personio.com/hr-lexicon/human-resource-management-system-hrms/
The Role of HR Technology in Managing Human Capital
https://www.shrm.org/resourcesandtools/hr-topics/technology/pages/default.aspx
What Is Organizational Capital?
https://hbr.org/2023/11/why-organizational-capital-is-the-key-to-high-performance
How to Create a Human Resource Information System (HRIS)
https://kissflow.com/hr/hris/
Building a Centralized HR Dashboard for Talent Tracking
https://datapine.com/blog/hr-dashboard-examples-and-templates/
Resource Planning & Information Systems
Enterprise Resource Planning (ERP) Systems in HR
https://www.techtarget.com/searcherp/definition/ERP-human-resources-management
Designing Resource Allocation Systems for Organizations
https://www.researchgate.net/publication/357321093_Resource_Allocation_Strategies_in_HR
Human Resource Information Systems: A Contemporary Perspective
https://www.researchgate.net/publication/341801184_Human_Resource_Information_Systems_A_Review
Workflow & Automation Integration
Automating HR Processes for Improved Productivity
https://blog.hubspot.com/service/hr-automation
Business Process Management for HR Departments
https://kissflow.com/workflow/hr-process-automation/
Workflow Management Systems in Human Resource Applications
https://www.sciencedirect.com/science/article/pii/S1877050919319912
Multi-Level Access Control & Security
Role-Based Access Control: Best Practices
https://auth0.com/docs/manage-users/access-control/rbac/
Data Privacy in Human Resource Systems
https://iapp.org/news/a/data-protection-in-human-resources-management/

Security Guidelines for HR Software
https://www.csoonline.com/article/3438723/hr-security-how-to-protect-employee-data.html
Multi-Platform and Multi-User Support
Cross-Platform App Architecture for Enterprise Applications
https://www.geeksforgeeks.org/what-is-cross-platform-in-software-development/
Best Practices for Multi-User System Development
https://medium.com/@anushkask/multi-user-system-design-in-web-application472ba1d73c19
Technical Stack & Development
Java SE Documentation – Oracle
https://docs.oracle.com/javase/
Spring Boot Official Documentation
https://spring.io/projects/spring-boot
MySQL 8.0 Reference Manual
https://dev.mysql.com/doc/
Frontend Development: HTML, CSS, JavaScript
https://www.w3schools.com/
GitHub – Open-source HR & ERP Systems
https://github.com/search?q=human+resource+management+system&type=repositories